I. A. HEBBARD.

Harvester Cutter.

No. 101,460. Patented April 5, 1870.

Fig. 2

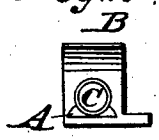


Fig. 1.

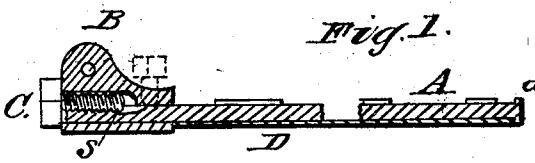
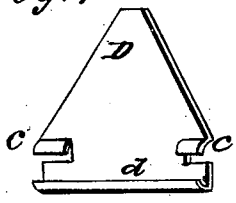


Fig. 3

Fig. 4



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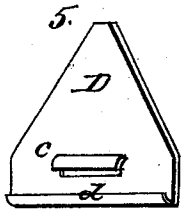

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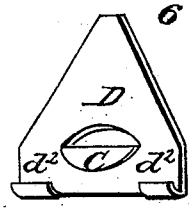

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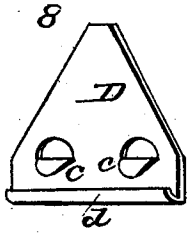

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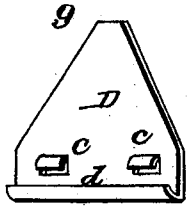

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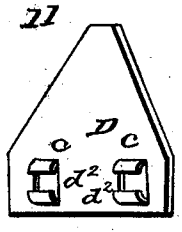

Fig. 12

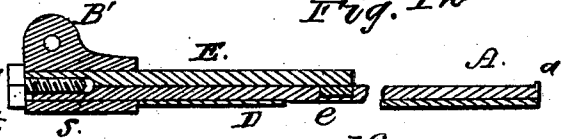

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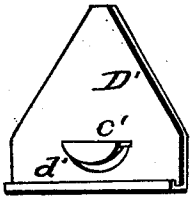
Fig. 14.



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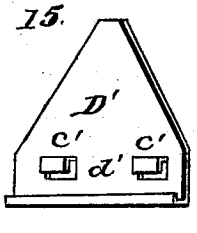

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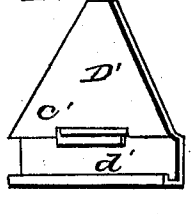

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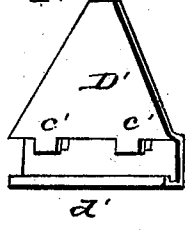

Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

IRA A. HEBBARD, OF ROCHESTER, NEW YORK, ASSIGNOR TO E. F. HEBBARD, OF SAME PLACE.

IMPROVEMENT IN HARVESTER-CUTTERS.

Specification forming part of Letters Patent No. **101,460**, dated April 5, 1870.

To all whom it may concern:

Be it known that I, IRA A. HEBBARD, of the city of Rochester, State of New York, have invented a certain new and useful Improvement in Adjustable Harvester-Knife; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, similar letters of reference indicating like parts, in which—

Figure 1 is a sectional view of a half-round knife-bar, A, and knife-head B, showing the relative arrangement of the retaining-screw C. Fig. 2 is an end view of the knife-head B, retaining-screw C, and knife-bar A. Fig. 3 is a view of the outer end of the bar, showing the retaining-head *a*. Figs. 4, 5, 6, 8, 9, and 11 are perspective views of knife-sections for a half-round bar, showing the various ways the fastenings may be made. Fig. 12 is sectional view of a flat knife-bar, A′, and knife-head B′, showing the relative arrangement of the retaining-screw C′ with the knife-bar A′ and the short retaining-bar E. Fig. 13 is a view of the outer end of the bar, showing the retaining-head *a′*. Figs. 14, 15, 16, and 17 are perspective views of knife-sections for an ordinary flat knife-bar, showing the various ways the fastenings may be made.

To enable others to make and use my invention, I will describe its construction and operation.

A, Fig. 1, and A′, Fig. 12, represent the knife-bar of a harvester. In the upper face of that end of the knife-bar which is to be inserted in the knife-head B a concave or semi-cylindrical depression, *s*, is formed and threaded to engage the threads of a retaining and tightening screw, C C′. The aperture in the knife-head to receive the end of the bar A or A′ is so formed as that, when the end of said bar is placed therein and the screw inserted, it will fit closely and tightly in the aperture, as illustrated in Fig. 1, and, engaging the thread in the end of the bar, will force the head B or B′ against the knife blades or sections placed on the bar, and hold them firmly. A set-screw, indicated by dotted lines in Fig. 1, inserted through the head to bear upon the bar, will add to its security.

E, Fig. 12, is a short auxiliary bar to lay upon the end of the knife-bar A′. It is provided with a lip or lug, *e*, passing into a slot or recess in the knife-bar, and its outer end is provided with a threaded recess, the counterpart of that on the end of the knife-bar, to form, in connection therewith, a threaded aperture to receive the screw C′, so that, when the ends of the two bars are laid together and inserted within the head B′, they may be drawn up firmly and secured by means of said screw C′, as illustrated in Fig. 12. This auxiliary bar E serves to make the connection of the knife-bar to the head more tense and rigid, and to afford additional support thereto.

D D D are knife blades or sections, formed and fitted to slip over and be secured upon a half-round or a beveled knife-bar, A. D′ D′ D′ are similar blades or sections, to be secured in like manner upon a flat rectangular bar, A′. *c c c* and *c′ c′ c′* are lips cut out of the blades and turned up to embrace the front edge of the knife-bar. The lips *c c c* are simply bent or turned up at an angle, or with a curve corresponding to the bevel of a beveled bar, or to the curve of a half-round bar, A, to which they are to be fitted so as to embrace the same closely. The lips *c′ c′ c′* are first bent up to form a right angle with the blade, and their upper edges are then bent over parallel thereto, so as to embrace closely the rectangular edge of the flat bar A′, to which they are to be secured. *d d d* and d^1 d^1 d^1 are flanges, turned up, in the usual manner, upon the rear edge of the blades, and properly formed, as illustrated in the drawings, to fit upon and closely clasp or embrace the rear edge of the knife-bar A or A′, for which the blades are intended. d^2 d^2, Fig. 6, are double lips, turned up from the rear edge of the blades, or cut out therefrom near its rear edge, (see Fig. 11,) as a substitute for a continuous flange, *d* or d^1, as an improvement thereon, to prevent and obviate the difficulty which often arises in fitting the blades, or from the loosening and consequent vibration or rocking movement thereof when in use, because of an indentation of the flange *d* or d^1 at some central point in its length. By the use of double lips d^2, instead of a single continuous flange, the pos-

sibility of injury from such indentation is almost entirely removed, while the fastening of the blade is made equally secure.

I contemplate various forms for the lips *c c c' c'*, as illustrated in the drawings. They may be cut out either from under the knife-bar and turned forward, (see Figs. 4, 5, &c.,) or from in front thereof and turned back. (See Fig. 6.)

The sections or blades D are made ready for use by inserting the left end of the knife-bar A under the lips and flanges *c d* thereof, and sliding the sections along upon the bar until the first strikes against the raised head or stop *a*. When the number of sections required to complete the knife-bar have thus been placed thereon, the end of the bar is inserted in the head B and secured by the screw C, as already set forth, so that the sections or blades shall all be solidly and rigidly secured in place.

I make the sections or blades of the ordinary sheet-steel provided for that purpose, and all of them may be cut out and formed complete with dies and punches.

The knife-bar is solid iron or steel, not necessarily requiring a hole in it, thereby making the bar much lighter and securing greater strength, obviating the time and expense of drilling the knife-bar, riveting on the sections, and straightening it.

This improved knife bar and section can be made cheaper than those in ordinary use, and, being adjustable, the sections are readily removed to grind or to replace broken or defective ones.

I leave a space on the bar, between the end of the lips *c* and *d* of each section shown, in which is fitted the knife-bar guide. This guide is fastened to the finger-bar, and serves the purpose to retain the knife in the proper place in the guards.

Clamping or retaining lips, to hold both the front and rear edges of the knife-bar, and to form a dovetail groove to receive the same, have heretofore been made on or out of the metal of which the blades are composed, by folding, crimping, or upsetting the metal without cutting the same. But, while the flanges on the outer edges of the blades or sections may thus be formed by bending or folding the metal, it is not practical to thus form the inner lips, on account of the cost, and of the liability of the steel to crack or break in turning the short angles necessary thereto.

I do not claim a lip formed by crimping, folding, or upsetting the metal of a blade without cutting the same; but

What I claim as my invention is—

1. Front lips *c c'*, cut and turned up from the metal of an adjustable harvester-knife section, to clamp and hold upon the front edge of the knife-bar, substantially as and for the purpose herein set forth.

2. A rectangular flange turned up from the rear edge of an adjustable knife-section, and combined with front lips or clamps cut from the metal of the section, substantially in the manner and for the purpose herein set forth.

3. A retaining-screw, C, in combination with a threaded seat in the knife-bar and with a suitable aperture in the knife-head, all substantially in the manner herein set forth.

4. The supporting-bar E, in combination with the inner end of the knife-bar A', the knife-head B', and retaining-screw C', all substantially in the manner herein set forth.

IRA A. HEBBARD.

Witnesses:
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KENDRICK P. SHEDD.